

## Self- Enhancement Educational Program for Health Practices among Patients with Fibromyalgia

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### Abstract

**Background:** Fibromyalgia is a complex chronic condition that imposes a heavy burden on the self-enhancement and management abilities of the patient. Therefore, patient education is regarded as a crucial element of multimodal therapy. **The aim** of the study was to determine the effect of self- enhancement educational program for health practices among patients with fibromyalgia. **A quasi-experimental research design** was employed for this study, which took place at the Rheumatology and Immunology outpatient clinic at Mansoura University Hospital in Egypt. A purposive **sample** of 85 patients with fibromyalgia represented the study participants. Three **tools** were used in data collection; Tool 1: A structured interview; Part 1: socio-demographic data and Part 2: Fibromyalgia Knowledge Questionnaire (FKQ), Tool 2: The Revised Fibromyalgia Impact Self-administered Questionnaire (FIQR) and Tool 3: Self - Rated Abilities for Health Practices Scale (SRAHP). **Results** illustrated that the self-enhancement educational program had positive effects on patients' knowledge level ( $4.22 \pm 4.75$  to  $15.21 \pm 4.35$ ), revised fibromyalgia impact ( $52.30 \pm 4.20$  to  $31.69 \pm 4.93$ ) and their self-rated abilities for health practices ( $43.64 \pm 13.82$  to  $67.05 \pm 12.12$ ) compared to pre-applying the program with  $P (<0.05)$ . **Conclusion** There were significant positive correlations between patients' self-rated abilities for health practices and both their knowledge and their total revised fibromyalgia impact post applying the self-enhancement educational program at  $P (<0.05)$ . **Recommendation:** Ongoing educational programs may be necessary to sustain improvements in a revised fibromyalgia impact and self-rated abilities for health practices.

**Keywords:** Educational Program, Fibromyalgia, Health Practices, Self- Enhancement

## Introduction

Fibromyalgia (FM) is a multifaceted chronic condition characterized by widespread and persistent pain, fatigue, stiffness, sleep disturbances, cognitive impairment, and irritable bowel syndrome (IBS). Since there is no known cure for FM, the current approach to treatment emphasizes empowering patients to self-manage their symptoms by adopting lifestyle modifications like pacing activities, practicing relaxation techniques, and engaging in regular exercise (**Pearson et al., 2020**).

Treatment of fibromyalgia should encompass a multidisciplinary approach, combining various pharmacological and non-pharmacological therapies. Patient education aimed at self-improvement was identified as one of the recommended components. Based on research, it has been observed that a multicomponent therapy, involving both psychological and physical interventions, has positive effects on key symptoms of fibromyalgia, as well as on self-esteem and physical fitness (**Mendoza et al., 2021**).

Self-enhancement theory highlights the inherent drive to acquire self-knowledge. A self-enhancement educational program pertains to an individual's capacity to monitor his/her health status and employ behavioral, cognitive, and emotional strategies necessary to promote a satisfactory quality of life. Self-enhancement interventions typically aim to enhance an individual's overall health by imparting skills for effectively managing a particular condition, encompassing aspects related to behavior, emotions, and medical care (**Geraghty et al., 2021**).

The main role of nurses in rheumatic services, are to provide comprehensive nursing interventions to control disease activity, reduce symptoms, and enhance patient outcomes. Patients with fibromyalgia require nursing care to manage and monitor, focusing on long-term, repetitive interactions to ensure a maximum level of patient knowledge throughout the course of the illness, sometimes even leading to a change in lifestyle habits. So, patient education works best when it is active, ongoing, goal-driven, and centered around collective decision-making. Gradual exercise is vital for preserving general health and diminishing certain manifestations (**John, Aebischer, Friend & Jones, 2022**)

### Significance of the study:

The burden of Fibromyalgia is considerable, affecting both psychological well-being and fundamental and essential daily activities. Previous studies have shown that the most effective approach for treating FM involves a mix of patient education, pain management strategies, and aerobic exercise. Patient education is considered the initial step towards self-improvement for individuals with FM. Despite, the scientific evidence demonstrating the effectiveness of educational interventions in alleviating the primary symptoms is limited for patients with rheumatic conditions like fibromyalgia (**Mendoza et al., 2021**).

The worldwide prevalence of FM varies from 0.2% to as high as 8% across different countries, with a higher occurrence among women. In Egypt, the prevalence of FM was evaluated in patient cohorts with concurrent illnesses, revealing that 1.9% of individuals with chronic liver disease also had FM. Among patients with rheumatic diseases, such as rheumatoid arthritis (RA) and systemic lupus erythematosus, the prevalence

of FM was higher, with rates of 21% in RA patients and 18% in those with SLE. As Egypt moves forward with the implementation of nation-wide global health coverage in 2020, Egyptian family physicians were assigned the responsibility of diagnosing fibromyalgia, providing initial management, and making referrals in cases of diagnostic uncertainty (**Zeid and ibrahem 2021**).

**Aim of the Study:** The present study aimed to determine the effect of self- enhancement educational program for health practices among patients with fibromyalgia.

### Research Hypotheses

**H1:** After the self- enhancement educational program, the patients would show improvement in their knowledge level and revised fibromyalgia impact compared to before program.

**H2:** After the self- enhancement educational program, the patients would exhibit an improvement in their self-rated abilities compared to before program.

**Research design:** A quasi-experimental research design (one group, pre& posttest) was utilized in this study. Quasi-experimental design entails the selection of groups for testing a variable without utilizing random pre-selection procedures (**Gopalan, Rosinger, & Ahn 2020**).

**Setting:** This study was carried out at Rheumatology and Immunology Outpatient Clinic at Mansoura University Hospital, Egypt. This clinic is located at the ground floor, inside a special building for different outpatient clinics in the Main Mansoura University Hospital. Patients diagnosed with fibromyalgia are referred to this clinic for monthly follow-up visits, direct patient

contact, and the implementation of an educational program.

**Subjects:** A purposive sample was used to choose 85 patients with fibromyalgia from a total of 105 affected patients in the previous year based on the following equation:  $n=N(1+N e^2)$  (**Krejcie and Morgan, 2018**)

$n$ = sample size

$N$ = population size is 105

$e$ = .05 is the level of perception

$n=105(1+105), (005) =85$

The participants in the study were selected based on their readiness to fully participate in the study. Some exclusion criteria were considered for avoiding inappropriate cases such as being under the age of 18 and having other health problems, such as diabetes, hypertension, and/or cardiovascular disorders.

### Tools for Data collection:

#### Tool I: A Structured Patient Interview

It was developed by the researchers in simple Arabic language consisting of 2 parts;

Part 1: Sociodemographic data including (age, sex, marital status, educational level, residence, employment status and monthly income).

**Part 2:** Fibromyalgia Knowledge Questionnaire (FKQ), it was adopted from **Mendoza et al., (2021)**. This questionnaire is utilized to evaluate the level of knowledge regarding fibromyalgia. The questionnaire consists of 26 questions, categorized into four domains: general knowledge about the disease (9 items), knowledge about treatment (4 items), understanding of medication and potential side effects (2 items), knowledge about physical activity (6 items), and comprehension of day-to-day

activities in relation to energy usage or energy conservation strategies (5 items). The total score of the questionnaire is 26 points.

### Scoring system

Subscale scores were summed to obtain a total score. Total scores range from 0-26. The following score ranges were established according to **Mendoza et al., (2021)** cut-off point:

Less than 50% (poor knowledge), 50 to 75% (average knowledge, more than 75% (good knowledge).

### Tool II: The Revised Fibromyalgia Impact Self-administered Questionnaire (FIQR):

Fibromyalgia Impact Questionnaire (FIQ) was adopted from **El-Naby, Hefny, Fahim, & Awadalla (2013)**. It measures 3 domains over the past 7 days; physical function (9 items), overall impact (2 items), and symptom intensity (10 items). Numerical rating scale for all questions ranged from 0 to 10, with 10 being the worst. The summed score for function (range 0 to 90) is divided by 3 to be 30, the summed score for overall impact (range 0 to 20) is not changed, and the summed score for symptoms (range 0 to 100) is divided by 2 to be 50. A higher score indicates a negative impact, and the total FIQR is the sum of the three modified domain scores.

**Tool III: Self-Rated Abilities for Health Practices Scale (SRAHP):** A self-reported questionnaire for self-rated abilities for health practices was adopted from **(Drake, 2018)** and translated to simple Arabic language. (SRAHP) is a 28-item, five-point scale that measures self-reported capability to implement healthy habits and these items were rated from zero to four. Exercise, nutrition, responsible health practices, and psychological well-being were the four

components of the SRAHP and seven items make up each subscale.

**Scoring system:** Subscales were Nutrition, Psychological Well Being, Exercise, and Responsible Health Practices, every subscale included 7 items and rated from 0 to 4 point for each item. Subscale scores were summed to get a total score and the total score ranges from 0 to 112. The mean and standard deviation was used to compare SRAHP scores before and after implementing the program, higher score indicated greater self-efficacy for health practices.

### Validity and reliability of the tools

**Validity:** The content-related validity of the designed and translated tools was evaluated by a panel of experts. Five experienced professors; two experienced professors in the fields of medical surgical nursing, two professors in community health nursing, and one professor in public health medicine evaluated the implementation tools for clarity, relevance, and application.

**Reliability:** In the current study, Cronbach's alpha coefficient for the knowledge questionnaire was 0.82, the Cronbach alpha for tool II FIQR was 0.95 and Cronbach's alpha coefficient for the Tool III (SRAHP) was high 0.92.

**Pilot Study:** To ensure the clarity and applicability of the tool, a pilot study was conducted involving 9 patients (10% of the sample size). The pilot study aimed to assess the comprehensibility of the questionnaire and estimate the time required for participants to complete.

### Ethical Considerations

The Research Ethical Committee of the Faculty of Nursing at Mansoura University,

Egypt, granted ethical permission (**Ref No. 0461**). Prior to patient's involvement in the study, informed consent was obtained from each patient after providing a clear explanation of the study's purpose and nature. Participants were given the right to withdraw from the study at any time or decline to answer specific questions without providing a reason. The researchers emphasized the maintenance of anonymity and confidentiality regarding the participants' data.

#### **Data collection procedure (fieldwork):**

The actual field work started from the beginning of May, 2023 to the end of September 2023. The study comprised the following phases:

#### **Preparatory Phase**

The preparatory phase commenced in May 2023 and lasted until the end of the same month. This phase involved the development of the data collection tools and the self-enhancement educational program based on reviewing relevant literature. The educational materials were presented through booklets and PowerPoint presentations, utilizing straightforward Arabic language and supplemented with images to grasp their attention.

#### **Content of the program:**

The design of the booklet aimed to cater to the specific needs and interests of patients while aligning with their levels of understanding. It encompassed various topics, including the following: providing general information about fibromyalgia, explaining its definition, outlining risk factors, detailing primary and secondary symptoms associated with FM, discussing diagnosis and medical treatment options, addressing potential complications, and presenting health practices techniques such

as physical activity, adopting a healthy diet, managing stress, fostering self-esteem, regulating emotions, and promoting responsibility towards personal health practices.

#### **Implementation Phase**

This phase spanning from the beginning of June to the end of August 2023, involved implementing the self-enhancement educational program. The program was implemented over a three-month period, with sessions held twice a week on Saturdays and Tuesdays. This included conducting a pretest before the program, implementing the program itself.

The pre-test involved filling out socio-demographic information, the revised fibromyalgia impact self-administered questionnaire, and self-rated abilities for health practices. This process typically took approximately 20 to 30 minutes.

The educational program consisted of three sessions, combining lectures, demonstration, role play, re-demonstration, and group discussions. The first session, immediately following the pre-test, focused on providing a theoretical overview of fibromyalgia, covering topics such as its definition, predisposing factors, signs and symptoms, and complications.

The second session was practical in nature. It involved teaching health practices techniques, including appropriate exercises, adopting a healthy diet, stress reduction, and taking responsibility for one's health practices. This session emphasized the importance of monitoring and reporting symptoms, as well as promptly communicating any negative changes and seeking necessary information as needed.

During the third monthly follow-up visit, patients received the third session, which combined theoretical and practical elements. This session covered topics such as medical treatment for fibromyalgia, independent management of symptoms, self-enhancement activities to boost self-esteem and regulate emotions, and addressing any challenges encountered while engaging in these activities. Additional health information was provided to respondents who required it.

Each session had duration of approximately 30 to 45 minutes and included interactive feedback. These educational sessions were conducted either on an individual basis or in groups, depending on the number of patients accommodated in each room, with group sizes ranging from 5 to 10 patients.

**Evaluation Phase:** Following the completion of the program, a post-test evaluation was conducted with all patients in the study to assess its impact. This evaluation occurred one month after the program had been completed, specifically during the fourth monthly follow-up visit.

## Results

**Table 1** demonstrates that 92.9% of the patients in the study were females, with a mean age of around  $43.4 \pm 6.47$ . Regarding the educational level, 51.8% of the patients had secondary school education, and 63.5% of them were working full time, but 48.2% of them didn't have enough monthly income. Concerning marital status, 67.1% were married, and 76.5% of them were from urban areas.

**Figure 1** illustrates that there were highly significant statistical differences between pre- and post-application of the self-enhancement program in the levels of total knowledge, with  $P$  value = 0.000. It is clear

from this figure that 5.8% of the studied patients had average total knowledge regarding fibromyalgia before the self enhancement program, while 64.7% of them had average total knowledge regarding fibromyalgia after applying the self enhancement program.

**Table 2** displays that the mean scores of total revised fibromyalgia impact decreased at the post-program with a mean  $\pm$  SD of  $31.69 \pm 4.93$ , compared to  $52.30 \pm 4.20$  at the pre-program. Also, there were highly significant statistical differences between the pre- and post-application of the self enhancement program in the mean scores of total revised fibromyalgia impact and its domains, which are embodied in physical function, the overall impact of fibromyalgia, and symptom intensity over the past 7 days, with a  $P$  value of 0.000.

**Table 3** confirms a significant improvement in the levels and mean scores of Self-Rated Abilities for Health Practices (SRAHP) at post-program, with a mean  $\pm$  SD ( $67.05 \pm 12.12$ ) compared to  $43.64 \pm 13.82$  at pre-program. In addition, there were highly significant statistical differences between pre- and post-application of the self-enhancement program in the mean scores of the overall and subscales of SRAHP, which are depicted by nutrition, psychological status, exercise, and responsibilities for health practices, with a  $P$  value of 0.000.

**Figure 2** depicts that 30.6% of the studied patients had a high level of total SRAHP before the self enhancement educational program, while 83.5% of them had a high level of total SRAHP after applying the self enhancement program.

**Table 4** reveals that there were significant positive correlations between patients' knowledge and both their total revised

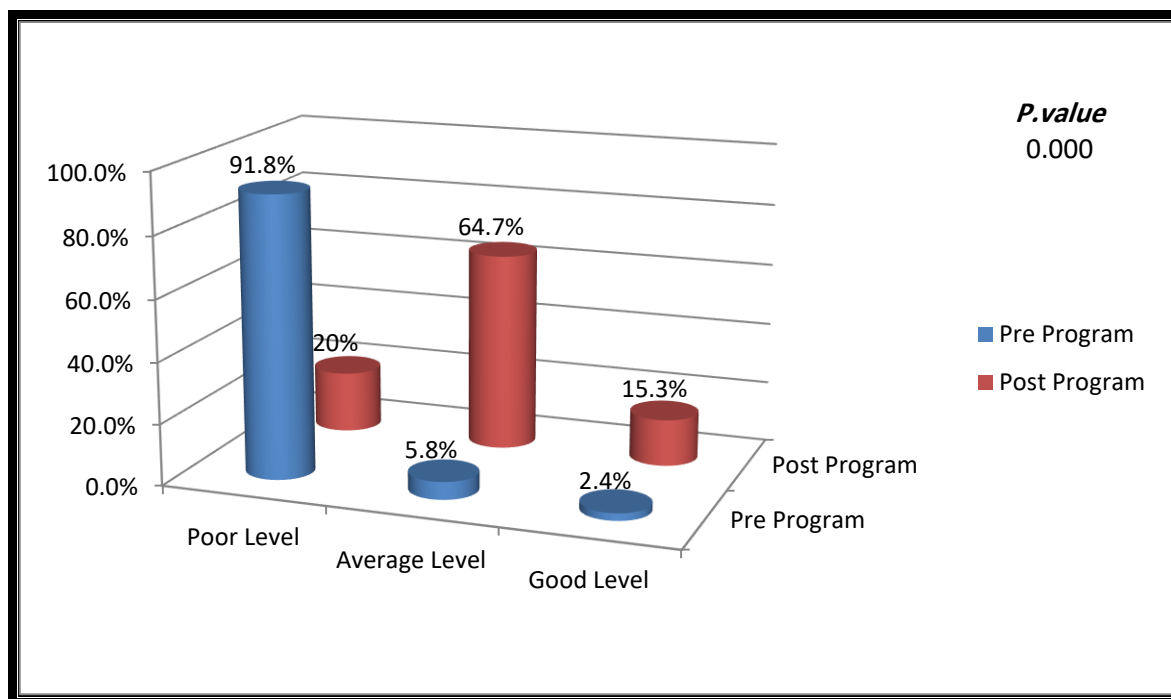
fibromyalgia impact and self-rated abilities for health practices before applying the self enhancement program. In this table also, it is obvious that there was a significant positive correlation between patients' self-rated abilities for health practices and their total revised fibromyalgia impact at a *P value* of <0.05.

**Table 5** reveals that there were significant positive correlations between patients' self-rated abilities for health practices and both their knowledge and their total revised fibromyalgia impact after applying the self enhancement program at a *P value* of <0.05.

**Table (1):** Number and Percentage Distribution of Socio-demographic Data among Patients with Fibromyalgia (n=85).

Demographic data	The studied sample (N=85)	
	No.	%
<b>Sex:</b>		
Male	6	7.1
Female	79	92.9
<b>Age:</b>		
<b>Mean ± SD</b>	43.4±6.47	
<b>Level of education:</b>		
Illiterates	4	4.7
Primary	9	10.6
Secondary	44	51.8
University	28	32.9
<b>Occupation level</b>		
Full time	54	63.5
Retired	3	3.5
Unemployment	28	32.9
<b>Marital status:</b>		
Single	12	14.1
Married	57	67.1
Divorced	5	5.9
Widow	11	12.9
<b>Residence</b>		
Rural	20	23.5
Urban	65	76.5
<b>Income</b>		
Not enough	34	40
Enough	41	48.2
Enough and safe	10	11.8





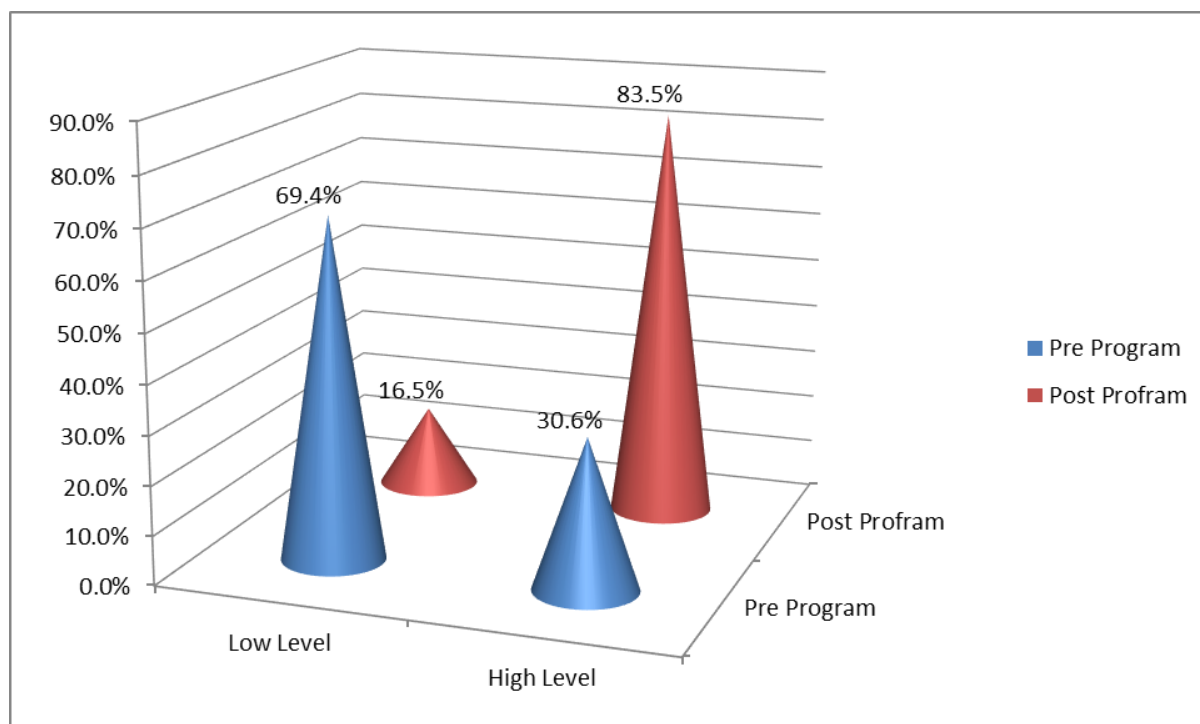
**Figure (1):** Percentage Distribution of total knowledge among Patients with Fibromyalgia pre and post applying program (n=85).

**Table (2):** Mean and standard distribution of Total Revised Fibromyalgia Impact and its domains among Patients with Fibromyalgia pre and post program (n=85).

Total revised fibromyalgia impact domains	The studied sample				Paired t test	P value
	Pre		Post			
	mean	SD	mean	SD		
- Physical function over the past 7 days (9 items) (range 0 to 90)	14.60	2.10	9.24	2.12	13.94	0.000
- Overall impact of fibromyalgia over the past 7 days (2 items) (rage 0 to 20)	11.43	2.11	7.31	3.25	8.92	0.000
- Symptom intensity over the past 7 days (10 items) (rage 0 to 100)	26.27	3.14	15.12	3.48	22.22	0.000
- Total Revised Fibromyalgia Impact	<b>52.30</b>	<b>4.20</b>	<b>31.69</b>	<b>4.93</b>	<b>30.63</b>	<b>0.000</b>

**Table (3):** Mean and Standard Distribution of Overall and Subscales of Self-Rated Abilities for Health Practices among Patients with Fibromyalgia pre and post program (n=85).

Self-Rated Abilities subscales	The studied sample				Paired t test	P value
	Pre-applying		Post- applying			
	mean	SD	mean	SD		
- Nutrition	10.52	3.45	18.81	4.46	14.67	0.000
- Psychological status	11.38	3.77	16.64	4.45	10.45	0.000
- Exercise	10.81	3.50	15.36	5.20	9.26	0.000
- Responsibilities for health practices	10.91	3.45	16.23	5.46	8.17	0.000
- Overall self-rated abilities	<b>43.64</b>	<b>13.82</b>	<b>67.05</b>	<b>12.12</b>	<b>16.28</b>	<b>0.000</b>
- Levels of SRAHP	No.	%	No.	%	$\chi^2$	P value
- Low level	59	69.4	14	16.5	2.09	0.000
- High level	26	30.6	71	83.5		

**Figure (2):** Percentage Distribution of Total Self-Rated Abilities for Health Practices among Patients with Fibromyalgia pre and post applying program (n=85).

**Table (4):** Correlation between Knowledge, Self-Rated Abilities for Heath Practices, And Revised Fibromyalgia Impact Pre applying program (N=85).

Knowledge, SRAHP, and revised fibromyalgia impact	Changes of scores of total knowledge, self-rated abilities for heath practices, and revised fibromyalgia impact pre program					
	knowledge		self-rated abilities for heath practices		revised fibromyalgia impact	
	R	p	r	p	r	p
Knowledge	1	---	0.019	0.864	0.02**	0.848
Self-rated abilities for heath practices	0.019**	0.864	1	---	0.0185	0.09**
Revised fibromyalgia impact	0.02	0.848	0.0185	0.09**	1	---

**Table (5):** Correlation between Knowledge, Self-Rated Abilities for Heath Practices and Revised Fibromyalgia Impact Post applying program (N=85).

Knowledge, SRAHP, and revised fibromyalgia impact	Changes of scores of total knowledge, self-rated abilities for heath practices, and revised fibromyalgia impact post program					
	Knowledge		Self-Rated Abilities		Revised Fibromyalgia Impact	
	r	p	r	p	r	p
Knowledge	1	---	0.279	0.01**	0.170	0.119
Self-rated Abilities for Heath Practices	0.279	0.01**	1	---	0.267	0.014*
Revised Fibromyalgia Impact	0.170	0.119	0.267	0.014*	1	---

## Discussion

Fibromyalgia is a complex condition with unique features that affect the physical and mental health of those who experience it. Although pain is the predominant symptom in FM, individuals also commonly experience fatigue, disrupted sleep, mood disturbances, and cognitive impairments. The lack of comprehensive understanding regarding the causes of FM and the absence of effective treatments contribute to feelings of uncertainty and insecurity among those affected with this condition (**García et al., 2022**). The role of nurses in controlling and monitoring patients with fibromyalgia has been demonstrated. People with fibromyalgia can benefit from educational practices provided by the nurses in health care settings. Knowledge and health practice about the disease and planned treatment must be provided to the patient's education (**Antunes, , Schmitt, & Marques 2022**).

On the subject of sociodemographic characteristics of the studied sample, the present study showed that most of the participants were females; this gender bias may be attributed to the hormonal changes that occur to the female throughout her life. This finding is in accordance with a study conducted in Egypt entitled "Evaluating gender differences in Egyptian fibromyalgia patients" by **Moshrif et al., (2022)** who declared that most patients were females in their study. In this study also, the mean age in years of the patients was around  $43.4 \pm 6.47$ , which is supported by the findings of **Couto et al., (2020)** in a study in England titled "Evaluation and association of self-care agency with symptoms and quality of life in patients with fibromyalgia" and

reported that the mean age of the study sample was  $42.7 \pm 10.12$  years.

Concerning the educational level, slightly more than one half of the patients had secondary school education and was married. This could be due to the fact that being married often involves household responsibilities, family needs, and social pressures, which can be stressful and physically demanding for the person. This result is consistent with **John et al. (2022)** in a study carried out in the USA entitled "Fibromyalgia: A Clinical Update," who discovered that nearly half of the studied subjects had secondary school education and were married. The current study also revealed that more than three-fifths of the studied patients were working full-time, but less than half of them did not have enough monthly income. Contrary to the result by **Loftus et al. (2022)**, who indicated that nearly three-quarters of participants were unemployed.

The current findings reflected that most of the studied patients had a poor total knowledge level regarding fibromyalgia before the self enhancement program. This result is in discordance with **Mendoza et al. (2021)** who conducted a study in Spain about "Knowledge about fibromyalgia in fibromyalgia patients and its relation to HRQoL and physical activity" and discovered that approximately one half of study participants had an average level of knowledge about fibromyalgia and the minority had a poor level of knowledge. Another study by **Alshaikh et al., (2024)** in Saudi Arabia entitled "Assessment of knowledge and prevalence of fibromyalgia in Riyadh region" concluded that a large proportion of the study participants had a low level of knowledge about fibromyalgia.

The result of this study emphasized that patients with fibromyalgia experienced significant improvement in their knowledge about the disease after participating in the self-enhancement education program compared to before the program. This is in line with a study in Spain by **García et al., (2019)** which entitled "Effectiveness of health education in patients with fibromyalgia: a systematic review" who indicated that the educational program including knowledge about exercise and nutrition had positive effects on patients' knowledge after implementing the education program.

The present study reveals that the mean scores of total revised fibromyalgia impact (FIQR) over the previous seven days had declined dramatically at post applying the self-enhancement educational program compared to pre applying the program. This reflects the positive impact of the self- enhancement program on the mean scores of total revised fibromyalgia impact and its domains, which is embodied in physical function, overall impact of fibromyalgia and symptom intensity over the past seven days.

This result concurs with **Loftus et al. (2022)** who noticed a moderate increase in the FIQR in their study with a moderate improvement in physical fitness and symptoms intensity in patients with fibromyalgia following educational intervention. The study's most significant findings were improvements in the patients' overall management of the disease's primary symptoms. Similarly, **Sousa, (2023)** in a study entitled "Fibromyalgia Self-Management: Mapping the behaviour change techniques used in a practice-based Programme"

noted that educational interventions had the greatest impact on fibromyalgia patients' physical fitness and functional capacity, as well as in terms of anxiety and depression.

According to **García et al., (2019)**, patients who received both exercise and education about fibromyalgia were able to better control how they felt about their symptoms. In this regard, in a study conducted in London, "Self-management for chronic widespread pain including fibromyalgia: a systematic review and meta-analysis" **Geraghty et al. (2021)** found that self-management interventions were effective in improving physical function.

The results of this study indicated a remarkable improvement in the mean scores of overall Self-Rated Abilities for Health Practices (SRAHP) at post program compared to preprogram. Additionally, the mean scores of the overall and subscales of self-rated abilities for health practices which are represented by exercise, dietary habits, psychological state, and responsibility for health practices, showed highly significant improvements between the pre and post application of the self-enhancement educational program. This is congruent with the findings of **Sousa (2023)**, who discovered that educational program promoting physical exercise have multiple positive effects on both the body and mind including dietary habits, practicing exercise and emotional status. Moreover, **Ducamp et al., (2022)** in a research about "Therapeutic patient education for fibromyalgia during spa therapy" carried out at England, highlighted the importance of patient education about fibromyalgia as it has a great effect on improving individual

health-related abilities as exercise and responsibilities for health practices.

In this study, it is clear that there were significant positive correlations between patients' knowledge and self-rated abilities for health practices pre and post applying the self-enhancement educational program. This could be explained by people with more knowledge about healthy practices related to their illness tend to engage in them more often such as diet, and appropriate exercises. This implies that self-rated abilities for health practices increased with increasing patient's knowledge level after the self enhancement educational program. This is in contrast with **Mendoza et al., (2021)** that there is no correlation between the level of knowledge about fibromyalgia and health practices as exercise.

### Conclusion

The results of the present study concluded that the self- enhancement educational program for health practices had positive effects on improving revised fibromyalgia impact (FIQR) and self-rated abilities for health practices (SRAHP) including patients' physical function, overall impact of fibromyalgia, symptom intensity, nutrition, psychological status, exercise and responsibilities for health practices. Finally, the results of the current study reinforced the research hypothesis by showing that application of self-enhancement educational program for health practices has an effect on improving patients' knowledge level compared to before program.

### Recommendations

Based on the results of the study, the following recommendations are suggested:

- Ongoing educational programs may be necessary to sustain improvements in a

revised fibromyalgia impact and self-rated abilities for health practices.

- To ensure that the results can be used in other health setting, the current study should be done again with a larger sample size and in a different hospital.

### References

- Antunes, M. D., Schmitt, A. C. B., & Marques, A. P. (2022).** Amigos De Fibro (fibro friends): Validation of an Educational Program to Promote Health in Fibromyalgia. *International Journal of Environmental Research and Public Health*, 19(9), 5297.
- Alshaikh, O. M., Alawwad, N. N., Alsubaie, S. S., Alahmari, A. N., Al-Mutairi, S., Al-Humaidi, K., & Alanazi, M. D. (2024).** Assessment of knowledge and Prevalence of Fibromyalgia among Medical Students and Physicians in Riyadh Region, *Journal of Family Medicine and Primary Care*, 13(2), 667-673.
- Couto, L. A., Yuan, S. L. K., Souza, I. M. B. D., Santo, A. D. S. D. E., & Marques, A. P. (2020).** Evaluation and Association of Self-Care Agency with Symptoms and Quality of Life in Patients with Fibromyalgia; *Fisioterapia e Pesquisa*, 27, 140-146.
- Drake, G. (2018).** Long-Term Impact of Lifelong Fitness: Examining Longitudinal Exercise Behavior in College Students; Doctoral Thesis; George Fox University; p.15. Available at <https://digitalcommons.georgefox.edu/psyd/236/>. retrived on (2023, gune)
- Ducamp, P., Sichére, P., Gayum, H., Dubourg, K., Roques, C. F., & Journot, V. (2022).** Therapeutic Patient Education for Fibromyalgia during Spa Therapy: The FiETT

- Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*, 19(8), 4613.
- El-Naby, M. A., Hefny, M. A., Fahim, A. E., & Awadalla, M. A. (2013).** Validation of an Adapted Arabic Version of Fibromyalgia Syndrome Impact Questionnaire. *Rheumatology international*, 33(10), 2561-2567.
- García-Perea, E., Pedraz-Marcos, A., Martínez-Rodríguez, S. H., Otones-Reyes, P., & Palmar-Santos, A. M. (2022).** Effectiveness of a Fibromyalgia Online Nursing Consultation in the Quality of Life: a Randomized Controlled Trial. *Pain Management Nursing*, 23(4), 478-485.
- García-Ríos, M. C., Navarro-Ledesma, S., Tapia-Haro, R. M., Toledano-Moreno, S., Casas-Barragán, A., Correa-Rodríguez, M., & Aguilar-Ferrándiz, M. E. (2019).** Effectiveness of Health Education in Patients with Fibromyalgia: a Systematic Review. *European Journal of Physical and Rehabilitation Medicine*, 55(2), 301-313.
- Geraghty, A. W., Maund, E., Newell, D., Santer, M., Everitt, H., Price, C., ... & Stuart, B. (2021).** Self-management for chronic widespread pain including fibromyalgia: A systematic review and meta-analysis. *Plos one*, 16(7), e0254642.
- Gopalan, M., Rosinger, K., & Ahn, J. B. (2020).** Use of Quasi-Experimental Research Designs in Education Research: Growth, Promise, and Challenges. *Review of Research in Education*, 44(1), 218-243.
- John, A. W. S., Aebischer, J. H., Friend, R., & Jones, K. D. (2022).** Fibromyalgia: A clinical Update. *The Nurse Practitioner*, 47(4), 20-30.
- Krejcie K., and Morgan (2018):** Sample Size Determination Using Krejcie and Morgan table. Kenya Projects Organization (KENPRO), 38, 607-610.
- Loftus, N., Dobbin, N., & Crampton, J. S. (2022).** The Effects of a group Exercise and Education Programme on Symptoms and Physical Fitness in Patients with Fibromyalgia: A Prospective Observational Cohort Study. *Disability and Rehabilitation*, 44(15), 3860-3867.
- Mendoza-Muñoz, M., Morenas-Martín, J., Rodal, M., García-Matador, J., García-Gordillo, M. Á., & Calzada-Rodríguez, J. I. (2021).** Knowledge about Fibromyalgia in Fibromyalgia Patients and its Relation to Hrql and physical activity. *Biology*, 10(7), 673.
- Moshrif, A., Shoaer, M. Z., Abbas, A. S., Abdel-Aziz, T. M., & Gouda, W. (2022).** Evaluating Gender Differences in Egyptian Fibromyalgia Patients Using the 1990, 2011, and 2016 ACR criteria; Open Access Rheumatology: Research and Reviews, 67-74.
- Musekamp, G., Gerlich, C., Ehlebracht-König, I., Faller, H., & Reusch, A. (2016).** Evaluation of a Self-Management Patient Education Program for Patients with Fibromyalgia Syndrome: Study Protocol of A Cluster Randomized Controlled Trial. *BMC musculoskeletal disorders*, 17(1), 1-7.
- Pearson, J., Whale, K., Walsh, N. E., Derham, S., Russell, J., & Cramp, F. (2020).** Fibromyalgia Self-Management: Mapping the Behaviour

Change Techniques Used in A Practice Based Programme. *Musculoskeletal Care*, 18(3), 372-382.

**Sousa, M., Oliveira, R., Brito, J. P., Martins, A. D., Moutão, J., & Alves, S. (2023, June).** Effects of Combined Training Programs in Individuals with Fibromyalgia: A Systematic Review. In *Healthcare* (Vol. 11, No. 12, p. 1708). MDPI

**Zeid, W., & Ibrahim, M. (2021).** Assessment of Family physicians' knowledge about Fibromyalgia in Egypt. *The Egyptian Rheumatologist*, 43(4), 337-340.